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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/591,442

06/09/2000

Raife F. Smith II

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09/20/2004

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EXAMINER

FERRIS III, FRED O

ART UNIT

PAPER NUMBER

2128

DATE MAILED: 09/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/591,442	Applicant(s) SMITH, RAIFE F.	
	Examiner Fred Ferris	Art Unit 2128	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 June 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 February 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. *Claims 1-31 have been presented for examination based on applicant's amendment filed 18 June 2004. Claims 1-31 remain rejected by the examiner.*

Response to Arguments

2. *Applicant's arguments filed 18 June 2004 have been fully considered.*

Regarding applicant's response to 112(2) rejection: The examiner withdraws the 112(2) rejection of claims 2 and 10 in view of applicant's amendment to the claims.

Regarding applicant's response to 102(b) rejection (Lee): Applicants argue that Lee does not teach normal and lognormal distributions. The examiner first notes that applicants claimed invention as disclosed in the specification, and the Lee article, are both drawn to solving the same problem. Namely, that of simulating (emulating) ATM network traffic that closely compares to a real-world ATM network. (See specification page 3, and Lee page 13, for example) Both applicant's specification, and the Lee article recognize that real-world inter-arrival times of packets in ATM networks can have a lognormal probabilistic distribution, and that delayed packets follow a normal probabilistic distribution. (See Lee pages 20, 25, 29, Tab. 4.1) Since Lee in fact teaches modeling (emulating) an ATM network by both lognormal and normal distribution, the lognormal and normal number generation of packet arrival times is obviously inherent in Lee. Lee does not teach away from the use of normal or lognormal distribution simply because it also teaches Pareto distribution as asserted by applicants. Applicant's claims

relating to lognormal/normal number generation have merely claimed the following limitations:

- lognormal number generator generating packet arrival times for some first packets/portions
- normal number generator generating packet arrival times for some second packets/portions

The examiner therefore submits that the teachings of Lee clearly anticipate the claimed limitations of the present invention. Accordingly, the examiner maintains the 102(b) rejections.

Regarding applicant's response to 103(a) rejection (Rueda in view of Kang):

Applicant's arguments center around the "many types of probability distribution" disclosed in Exhibit "B" (exponential, Beta, Cauchy, t, etc.), probability density function disclosed in Exhibit "A", and differing distribution functions which applicants have alleged is not disclosed in the prior art. (See arguments 06/18/04, pages 11, 12) In this case, applicant's arguments are clearly more specific than the claims require. In a nutshell, applicants have simply claimed limitations relating to "a mean and variance of a lognormal distribution characterizing packet inter-arrival times" (claims 3, 4, 11, 12, 15, 20, 21, 29, and 30). The examiner submits that these claimed limitations are rendered obvious in view of the prior art as cited under the 103(a) rejections below. The examiner also notes that none of the features argued by applicants relating to differing distribution functions or types of probability distribution are recited in the rejected claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26

USPQ2d 1057 (Fed. Cir. 1993). Accordingly, the examiner maintains the 103(a) rejection.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-32 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by “Wide Area ATM Network Experiments Using Emulated Traffic Sources” B. Lee, DARPA Technical Report ITTC-FY98-TR-10980-24, January 1998.

Independent claim 1, for example, is drawn to:

method for characterizing ATM network packet inter-arrival times by:
providing first portion of transported packets containing voice and video
providing second portion of packets containing other than voice and video
lognormal number generator generating packet arrival times for some of first packets
normal number generator generating packet arrival times for some of second packets

Regarding independent claims 1, 8, 16 and 26: Lee teaches techniques for the modeling, simulation, and emulation of ATM network traffic and packet **inter-arrival times** between sessions of packets (first, second, etc.) containing **voice and video** data (also graphic & multimedia data, i.e. other than voice and video). Lee further discloses modeling (generating) packet arrival times using **log-normal** number **distribution** and **normal** number **distribution**. (Entire teaching, especially: Abstract, pp. 2, 16-31, 37, 38, 47, 48, 59, 63, Figs. 3.1, 3.5, 4.5, Tab. 4.1)

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Per dependent claims 2-7, 9-15, 17-25, 27-31: This group of claims is drawn to limitations that include characterizing and modeling (generating) the packet inter-arrival times using log-normal and normal distribution which is disclosed by Lee as cited above. Lee further discloses modeling the **mean and variance** of log-normal and normal distribution packet arrival times. (see pages 16, 19, 20, 24, and Figs. 3.1, 3.2)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
- 4. Claims 1-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,597,660 issued to Rueda et al in view of "Two-State MMP Modeling of ATM superposed Traffic Streams Based on the characterization of Correlated Interarrival Times", S.H. Kang, pp. 1422-1426, IEEE Global Telecommunications Conference, IEEE 1995.**

Independent claim 1, for example, is drawn to:
method for characterizing ATM network packet inter-arrival times by:
providing first portion of transported packets containing voice and video
providing second portion of packets containing other than voice and video
lognormal number generator generating packet arrival times for some of first packets
normal number generator generating packet arrival times for some of second packets

*Regarding independent claims 1, 8, 16 and 26: Rueda discloses techniques for the modeling and simulation of **ATM network traffic** and the **characterization** of packets (first, second, etc.) by the **arrival time** between packets where the packets contain **voice (audio) and/or video** data. Lee further discloses the generation (simulation) of ATM network packets according to the **arrival time characterization** including **mean and variance** modeling. (Abstract, Summary of Invention, CL9-L57-65, CL10-L45, 55-59, CL11-L10-9, 55-65, CL13-L5-59, CL14-L1-53, CL15-L25-CL19-L57, Figs. 1-12, 18)*

Reuda implies, but does not explicitly teach characterizing and modeling (generating) the packet inter-arrival times using log-normal and normal distribution.

Kang teaches characterizing, simulation, and modeling (generating) of ATM network packet inter-arrival times using log-normal (logarithmic) and normal distribution. (Entire teaching, Abstract, Introduction, especially: sections II and III)

*It would have been obvious to one having ordinary skill in the art at the time the claimed invention was made to modify the teachings of Rueda relating to techniques for the modeling and simulation of **ATM network traffic** and the **characterization** of packets, with the teachings of Kang relating to inter-arrival times using log-normal (logarithmic) and normal distribution, to realize the claimed invention. An obvious*

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motivation exists since this area of technology is highly competitive with many types of ATM network simulators available in the market place and large amounts of money being spent in product development and improvement. (see Saito and Borrella Background, for example) Accordingly, a skilled artisan would have made an effort to become aware of what capabilities had already been developed in the market place and, hence, would have been motivated to modify the teachings of Rueda with the teachings of Kang in order to reduce development time and cost.

Per dependent claims 2-7, 9-15, 17-25, 27-31: *This group of claims is drawn to limitations that include characterizing and modeling (generating) the packet inter-arrival times using log-normal and normal distribution which is disclosed by Kang as cited above. Both Rueda and Kang further disclose modeling the **mean and variance** of packet arrival times. (Rueda CL11-L23-35, Figs. 8, 9, 12, Kang Section II)*

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent 6,563,796 issued to Saito teaches modeling and simulation of ATM network packet traffic.

U.S. Patent 6,442,141 issued to Borella et al teaches modeling and simulation of ATM network packet traffic.

"End-to-End Modeling and Simulation of MPEG-2 Transport Streams over ATM Networks with Jitter" W. Zhu, IEEE Transactions Circuits for Video Technology, Vol. 8, No. 1, February 1998 teaches modeling and simulation of ATM network packet traffic.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fred Ferris whose telephone number is 703-305-9670 and whose normal working hours are 8:30am to 5:00pm Monday to Friday.

Any inquiry of a general nature relating to the status of this application should be directed to the group receptionist whose telephone number is 703-305-3900.

The Official Fax Numbers are:

Official (703) 872-9306

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